

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION**

Health Discovery Corporation,

Plaintiff,

v.

Intel Corporation,

Defendant.

Civil Action No. 6:22-cv-356

JURY TRIAL DEMANDED

**INTEL CORPORATION'S REPLY IN SUPPORT OF ITS
MOTION FOR JUDGMENT ON THE PLEADINGS**

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I. INTRODUCTION

HDC's Response confirms one thing: Its second complaint provides no reason to disturb the Court's previous careful determination that HDC failed to plead patent-eligible claims. None of the four main arguments in HDC's Response can change the fact that its SVM-RFE patents claim nothing more than a mathematical algorithm executed on generic computer components and are therefore ineligible.

First, HDC hastily retreats from its many prior admissions that SVM and SVM-RFE are mathematical algorithms. Now, HDC re-casts the claims as covering an improved SVM classifier tool and relegates the admitted algorithms to "underlying an SVM or its resulting data." As the Court has previously determined, the algorithms do not simply *underlie* a tool. They *are* the tool. And HDC's use of the word "tool" or "machine" cannot confer eligibility, especially when HDC never identifies anything that could be a "tool" or "machine" other than a general-purpose computer.

Second, HDC relies on arguments that are irrelevant to the eligibility inquiry. It points to statements from Intel's prosecution of one of its own patents years before *Alice* based on a wholly different set of legal principles, ignoring the fact that Intel later conceded ineligibility after *Alice* clarified the law. Those statements related to Intel's patent, not HDC's, and add nothing to the analysis because they mirror allegations already accepted as true for purposes of this motion. HDC also cites the fact that the PTO has issued other patents that relate to SVM to other applicants. In addition to being immaterial, the other SVM patents are outside of the pleadings.

Third, HDC alleges that Intel "ignores" factual allegations in HDC's second complaint. But Intel devoted nearly half of its opening brief to demonstrating in detail how those allegations add nothing to HDC's quest to confer eligibility.

Fourth, in the short shrift it gives to *Alice* Step 2, HDC merely reiterates the same alleged improvements to the abstract SVM-RFE algorithm on which it relied for the first complaint. But, as this Court already explained, the abstract idea itself cannot provide an inventive concept.

Despite multiple bites at the apple, HDC still has put forth no evidence to suggest that its claims are patent-eligible. Therefore, the Court should grant Intel’s Motion, again hold the claims ineligible under § 101, and issue final judgment for Intel.

II. THE CLAIMS ARE DIRECTED TO A MATHEMATICAL ALGORITHM, NOT AN IMPROVEMENT IN TECHNOLOGY

As explained in Intel’s opening brief, clear and convincing evidence shows that HDC’s claimed SVM-RFE algorithm is an abstract idea, not a patent-eligible improvement in technology. Claim 1 of the ’188 patent, which HDC agrees is representative of the eligibility question, is directed to the abstract concept of an SVM-RFE algorithm. Dkt. 1-3 at 75:34–56 (Complaint Ex. A) (“’188 pat.”); Dkt. 42 at 3, 15–16; *see generally* Dkt. 33 at 9–15. The Court’s prior determination rested on a thorough review of the case law, HDC’s patents, and the pleadings in the prior action. Dkt. 17-9 at 8–23 (Answer Ex. I) (“Order”). The Court’s analysis relied primarily on the close similarities between HDC’s claims and the ineligible claims described in two cases, *In re Board of Trustees of 2 Stanford Junior University*, 991 F.3d 1245 (Fed. Cir. 2021) (“*Stanford II*”), and *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161 (Fed. Cir. 2018). Order at 20–22. Like those cases, HDC’s claims merely recite a mathematical enhancement to an SVM algorithm, namely, using SVM with RFE. *See* Order at 20. The law is unequivocal that HDC’s SVM-RFE is not a patent-eligible improvement in technology.

A. Relabeling the SVM-RFE algorithm as a “tool” or “machine” does not confer eligibility

Neither HDC’s allegations nor its response brief shows any patent-eligible improvement in technology. HDC does not dispute that SVM-RFE is merely an algorithm that runs on a generic

computer, so the question of eligibility rises and falls with the SVM-RFE algorithm itself. *See* Dkt. 42 at 13 (“The only disputed issue under the first step is whether an SVM may constitute a relevant technology that is more than an abstract idea.”); *see also id.* at 15–17. HDC tries to wordsmith its way to eligibility by reframing the SVM algorithm as a modified “tool” for classifying data. However, HDC’s new labeling cannot change the fact that the purported “tool” is just the SVM-RFE algorithm itself running on a generic computer. This reframing—unsupported by facts or evidence—infects all of HDC’s analysis, and in particular, its discussion of the case law, as explained below.

B. HDC’s analysis of Federal Circuit caselaw is factually and legally flawed

HDC asserts that its second complaint distinguishes its claims from *Stanford II* and *SAP* because the “additional facts” purportedly show more than “merely improv[ing] a mathematical technique” or “improv[ing] the quality of the data produced” by instead “modifying an SVM ... using the SVM-RFE process.” *Id.* at 15–16. But HDC never explains which “additional facts” show these purported distinctions.

And that caselaw directly undercuts HDC’s argument. *Stanford II* and *SAP* clearly show that *modifying* an existing mathematical algorithm to improve the algorithm or its results does not confer eligibility. In *Stanford II*, the prior art used “statistical tools” that made use of a hidden Markov model (“HMM”), whereas the ineligible claims were directed to “*a modified version of the preexisting*” statistical tools that used a particular type of HMM and “automatically recompute[d] the HMM’s parameters” to improve results. 991 F.3d at 1247–48 (emphasis added); *see also id.* at 1250–51. The claims were not an improvement in technology, but rather were “merely an enhancement to the abstract mathematical calculation of haplotype phase.” *Id.* at 1251. Likewise, in *SAP*, the ineligible claims used a modified version of prior-art statistical models that used “repeated sampling” of data instead of assuming a normal distribution to improve the results

of a statistical analysis. 898 F.3d at 1164; *see also id.* at 1167–68. Although the technique “select[ed] certain information” and “analyz[ed] it using mathematical techniques,” the claims were merely an “improvement in a mathematical technique,” not any improvement in technology. *Id.* at 1167–68. Likewise, an SVM algorithm modified with RFE is still, at bottom, an unpatentable algorithm.

Calling SVM a “tool” similarly fails to bring HDC’s claims closer to *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358 (Fed. Cir. 2020), *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143 (Fed. Cir. 2019), or *XY, LLC v. Trans Ova Genetics, LC*, 968 F.3d 1323 (Fed. Cir. 2020). In *CardioNet*, the claims were directed to “an improved cardiac monitoring device.” 955 F.3d at 1368. Rather than simply using a generic computer to implement an abstract concept, the claims improved *the functioning of the cardiac monitoring device itself* to “more accurately detect[] the occurrence of atrial fibrillation and atrial flutter.” *Id.* at 1368–69. In *Koninklijke*, the claims were directed to a specific way of varying a check data function to improve the technological process of error checking in data transmission. 942 F.3d at 1150–51, 1153. HDC takes the Court’s statements with respect to *CardioNet* and *Koninklijke* out of context. Dkt. 42 at 14 (citing Order at 20). Although the Court did note that it might have upheld the claims if *CardioNet* and *Koninklijke* were the only binding cases, the Court went on to state that “*SAP* and *Stanford II*—which deal with subject matter *much closer to that at issue here*—preclude that outcome.” Order at 20 (emphasis added). The Court recognized that the “surest guidance rises from cases analyzing patents most like those under review.” *Id.* As the Court previously found, the most similar cases—*Stanford II* and *SAP*—confirm that HDC’s claims are not patent-eligible. Further, as just discussed, HDC’s claims are not like the patent-eligible claims in *CardioNet* or *Koninklijke*, which recite improvements in technological devices or processes.

Similarly, the claims in *XY* were directed to an improved flow cytometer, which involved real-time sorting of particles based on the results of a data transformation. 968 F.3d at 1327–29. To be clear, the claims covered more than the improved algorithm—they recited “[a] method of operating a flow cytometry apparatus ... comprising ... establishing a fluid stream in the flow cytometry apparatus ... entraining particles from ... the fluid stream in the flow cytometry apparatus; executing instructions read from a computer readable memory” to detect signals, “convert” the signals “into n-dimensional parameter data,” “rotationally alter the n-dimensional parameter data” to increase “spatial separation of the data,” and “real-time classify each of the individual detected particles,” and finally, “using the real-time classification, sorting the individual particles with the flow cytometer.” *Id.* at 1328–29. Put more simply, the invention collected fluorescence signals from particles that passed through a flow cytometer and plotted the data points to help categorize—and ultimately sort—the particles into groups. *Id.* It was difficult to distinguish between similarly sized particles, so part of the claimed process applied a mathematical data transformation to create more separation between data points. The process then used the transformed data to physically sort particles as they continued through the flow cytometer. Thus, the invention merely used math as part of the process to improve flow-cytometry machines and enable them to better sort similarly sized particles. Accordingly, the Federal Circuit held that the claims were “not merely directed to a ‘mathematical equation that permits rotating multi-dimensional data,’” but “to a purportedly improved method of operating a flow cytometry apparatus.” *Id.* at 1330–31.

In each of these cases, although the inventions may have used math as part of the claimed processes, the improvement was ultimately to a technological tool (e.g., a cardiac monitor, an error transmission process, or a flow cytometer). By contrast, HDC’s claims do not merely use math as

part of the process for improving a technological tool. As Intel explained in its opening brief, the *entirety of the claimed invention is the SVM-RFE algorithm* running on a generic computer. *See, e.g.*, Dkt. 33 at 14–15. Therefore, HDC’s characterization of its claims as “recreat[ing] an SVM during each iteration” rather than “merely claiming an improvement in the mathematical algorithms underlying an SVM” is non-sensical. Dkt. 42 at 1; *see also id.* at 12. HDC cites no support for this assertion beyond simply explaining how the SVM-RFE algorithm works. *See id.* at 15–17. As discussed above, HDC’s addition of the word “machine” into its analysis (*see id.* at 17) does not change SVM-RFE’s abstractness. The “M” in “SVM” already stands for “machine,” and HDC repeatedly described SVM as an algorithm, so the “machine” is just an algorithm. Spelling that word out to respond to Intel’s motion changes nothing about the eligibility analysis. *See* Dkt. 33 at 9–10. And even accepting as true HDC’s allegations that its claimed invention is a modified or improved SVM algorithm, they do nothing to confer patent eligibility—the algorithm alone is not a technological “tool” or “machine.”

Relatedly, HDC argues that the allegations in its second complaint regarding SVM as a “tool” are not conclusory because they cite to “tangible evidence.” Dkt. 42 at 19. That is the extent of HDC’s analysis. It does not explain what “tangible evidence” supposedly makes its allegations non-conclusory. Nor does it explain how these allegations are anything more than descriptions of how the SVM-RFE algorithm functions on a generic computer, which does not confer eligibility.

Finally, HDC briefly accuses Intel of “overgeneralizing the claims.” *Id.* at 18. But HDC does not explain why Intel’s characterization is incorrect. Nor could it, as Intel’s description of the claims as directed to an SVM-RFE algorithm is consistent with both HDC’s prior characterizations and the Court’s. *See* Dkt. 33 at 9.

C. HDC's arguments about other patents are irrelevant

HDC also makes a series of arguments that are not relevant to the at-issue patents. HDC points to statements that Intel made about its own SVM patent claims during prosecution of Intel's U.S. Patent No. 7,685,077 and related interference proceedings over a decade ago. But those statements have no bearing on the eligibility of *HDC's* patents under current law. Dkt. 42 at 8–9, 16–17. Intel's statements were specific to its own patent¹ and were made before *Alice* and its progeny clarified patent-eligibility law. HDC insinuates that because § 101 has always been a statutory requirement for patentability, the law surrounding patent eligibility has remained unchanged for over a decade. That is clearly not the case. Prior to *Alice*, patent eligibility simply required that an invention be (1) tied to a particular machine or apparatus, or (2) transform a particular article into a different state or thing. *E.g., Prometheus Lab'ys, Inc. v. Mayo Collaborative Servs.*, 581 F.3d 1336, 1342 (Fed. Cir. 2009), *cert. granted, judgment vacated*, 561 U.S. 1040 (2010). Thus, Intel's comments to the PTO were meant to tie its SVM-RFE claims to use with a machine and/or the production of improved data. *Alice* changed the eligibility analysis and prescribed the now familiar, and more stringent, two-step framework. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 217–18 (2014). As discussed above, it is no longer the case that claims merely using SVM-RFE on a generic computer to produce improved data are patent eligible. Moreover, Intel later *conceded* to the PTO after *Alice* that those same claims were now ineligible under § 101. Dkt. 42-5 at 5–6.²

¹ While HDC copied its claims from Intel to force an interference proceeding, the patents' specifications are entirely different.

² In its post-*Alice* briefing to the Board, Intel argued the same bases for ineligibility that it asserts now—namely, that mathematical algorithms like SVM-RFE are abstract and that there is no inventive concept to save the claims. *See generally*, Ex. 1. The Court can take judicial notice of Intel's publicly filed interference briefing. *See, e.g., United States v. Mills*, 555 F. App'x 381, 387

Furthermore, the statements that HDC points to are substantively the same as the allegations in HDC's second complaint explaining how SVM-RFE works or its potential uses; those allegations are already accepted as true for purposes of the present motion, so Intel's prior statements add nothing to the analysis. As Intel explained in its opening brief, these allegations do not confer eligibility because they simply describe the abstract SVM-RFE algorithm or restrict it to a particular field of use. *See* Dkt. 33 at 10–14, 16–18. HDC's citations to other SVM patents are similarly irrelevant. Dkt. 42 at 9. The question is whether *HDC's* patents claim patent-eligible subject matter, not whether one could *ever* write a patent-eligible claim that incorporates SVM in some way.

D. Even an “unconventional” SVM is just an abstract algorithm

Finally, HDC argues that its patents claim a non-conventional, non-routine use of SVM. Dkt. 42 at 17–18. Even accepting that as true, this argument is irrelevant to the eligibility inquiry. First, the purported unconventionality that HDC relies on is nothing more than a description of how SVM-RFE works or the improved data it yields. *Id.* (describing the “use of ranked feature weights,” the resulting “insight into the relevance of various features,” and the purported “improve[ments]” or “efficiencies” gained). Neither confers eligibility, as described above and in Intel's opening brief. Furthermore, an unconventional SVM algorithm is still just an SVM algorithm. The law is clear that such mathematical algorithms are abstract concepts, even if they are “groundbreaking.” *See, e.g., SAP*, 898 F.3d at 1170; Order at 23–24.

HDC claims that Intel ignored allegations in HDC's second complaint, including allegations about “improvements” to SVM, but the record does not support that assertion. Dkt. 42

(5th Cir. 2014); FED. R. EVID. 201. The PTO exercised its judgment to dismiss Intel's request for a § 101 determination on the asserted patents in the interference due to the cost and additional delay necessary for the parties to provide the required updated briefing on the state of § 101 law. Dkt. 42-5 at 5–6.

at 10, 18. Nearly half of Intel’s opening brief was spent thoroughly discussing the “improvement” and “non-conventionality” allegations in HDC’s second complaint. *See* Dkt. 33 at 1, 7, 9–11, 14–15, 17–19. Intel explained—both in its opening brief and above—that HDC’s allegations are immaterial. As the Court previously held, even an improved or novel algorithm, without more, is an abstract idea. *See* Order at 21–22. Moreover, HDC does not specify which particular allegations were supposedly ignored, nor does it cite to anything from its second complaint to support its argument.

III. THE CLAIMS LACK AN INVENTIVE CONCEPT

HDC’s claims also lack an inventive concept. Dkt. 33 at 15–19. In short, the claims recite the abstract SVM-RFE idea practiced using routine and conventional techniques. Both the claims and the specification generically describe the implementing computer. *See* ’188 pat. at 12:64–67, 22:15–23:39, 30:1–3, 75:34–35. Moreover, even in its response brief, HDC does not allege that the computer using the SVM-RFE algorithm provides an inventive concept. It is well settled that use of a conventional computer to implement an abstract idea does not confer eligibility. *See, e.g., Alice*, 573 U.S. at 222; *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1095–97 (Fed. Cir. 2016).

HDC hardly defends against these points. It argues, confusingly, that Intel took too broad a view of the claims by looking at “HDC’s specific SVM-RFE implementation” and should have instead looked at the “concept of recursively eliminating features in an SVM,” which is clearly a *broad*er view than HDC’s specific implementation. Dkt. 42 at 20. Regardless, is it not clear how HDC’s argument would change the result. Under either characterization, the claims still describe nothing more than the abstract concept of SVM-RFE implemented on generic, routine, and conventional computers.

HDC again mentions that the claims are directed to a non-conventional use of SVM, incorporating the discussion from its Step 1 analysis. However, the abstract idea itself—here, the SVM-RFE algorithm—cannot supply the inventive concept. *See Simio, LLC v. FlexSim Software Prods., Inc.*, 983 F.3d 1353, 1364 (Fed. Cir. 2020); *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018). Moreover, even the most novel advances are not patent eligible if the claims are merely directed to an abstract idea. Order at 23–24 (“a mathematical idea can be novel and even a ‘groundbreaking’ advance and still not be patent eligible”); *see also SAP*, 898 F.3d at 1170; *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980). Therefore, even accepting HDC’s allegations as true, the supposed non-conventionality of its SVM-RFE algorithm is irrelevant to the inventive concept inquiry at Step 2.

Finally, HDC seems to have abandoned the “exemplary uses” that it cited in its second complaint specifically to attempt to deal with *Alice*’s Step 2 analysis. HDC does not dispute Intel’s point that these exemplary uses are irrelevant to eligibility because they are simply additional implementations of the abstract SVM-RFE concept. *See* Dkt. 33 at 17–18; Dkt. 42 at 19–20. In fact, HDC’s response brief does not even mention them. HDC, therefore, has not relied on anything different than its original allegations to show an inventive concept, and the Court’s previous Step 2 analysis should apply. Order at 23–24. Thus, neither the patents themselves nor HDC’s allegations provides an inventive concept to save its abstract claims.

IV. CONCLUSION

For the foregoing reasons, and those stated in Intel’s opening brief, Intel respectfully requests that the Court grant Intel’s Motion for Judgment on the Pleadings and enter final judgment in favor of Intel.

Dated: September 16, 2022

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CERTIFICATE OF SERVICE

I hereby certify that, on September 16, 2022, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send notification of such filing to all counsel of record.

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